Government Making Science The Handmaiden of Industry

Investigators Are Seeking to Learn New Secrets of Efficient Production in Miniature Factories at the Home of the Bureau of Standards

By Merryle Stanley Rukeyser

IN THE TEST tubes of industry which are sizzling at Washington American business men may perhaps find the key to the solution of their most irritating technical problems. The government, bent on facilitating commercial progress, has consciously embarked on the experiment of bringing physics and chemistry to the directors of production.

The central laboratory of the nation's business is to be the Bureau of Standards of the Department of Commerce, which is fast being equipped with miniature mills of the basic national industries. The aim of the new tendency in this country is to give men of business a more precise knowledge of and mastery over the immediate facts of their own everyday activity. Behind the physical devices for research which have been built at a cost of $1,150,000, lies a dominant purpose to smash the barriers between the laboratory and the factory.

Mating Business With Science

Out of the prospective romance of business and science perhaps a new type of industry may spring into being. In the forty years before the great matching of physical power and ideals on the battlefronts of Europe, two widely divergent types of industrial development were exemplified by the economic growth of Germany and the United States. The Teutonic people, proverbially thorough—in their faults notoriously so—came to see the unending contributions that science could make to industry. The result of their shrewd perception can be measured by their very striking industrial growth, which the whole world recognized, though disapproving of the purposes to which it was devoted.

Meantime, the United States leaped ahead largely by the sheer energy, initiative and inventive imagination of its people. Picture what results might flow from harnessing the creativity and thoroughness of the scientific method with the well-known business genius of American producers.

Such a fortuitous cross fertilization of business and science might possibly shift the whole approach to the riddles of production. It might make new horizons for men for business.

As long as American producers found wealth so plenteous and virginal that merely scratching the surface of materials yielded fabulous returns, the need for more intensive methods of production perhaps remained academic. Moreover, in the days when supplying home wants was the almost exclusive job of the American producer the necessity for analyzing industrial questions into elemental physical problems did not seem immediate.

A New Kind Of Conservation

But now that the war has left America in the dynamic midst of the whole world a fresh attitude toward industry seems desirable. Humanitarian impulses may keep the United States in the markets of the world for many months during the adjustment of all countries to a peace basis. And trade ambitions very likely will tend permanently to attract American enterprises to foreign business, now that the splendid isolation of the nation has been superseded by a new policy. Moreover, with the population at home revealing signs of perpetual growth, the value of conservation of resources through mastery of their scientific use becomes real.

Dr. Samuel W. Stratton, who since 1901 has been director of the Bureau of Standards, believes that the new instruments of the bureau will serve to make it a principal scientific contact point between government and business. His long experience at Washington has assured him that business men will come to the government with their and unpractical.

tories, which they regard as detached "shy" at going to university laboratory troubles, whereas they often

Seated in his private office in the centre of a cluster of eight buildings, which make the home of the bureau resemble the campus of a university, Dr. Stratton, in his reserved way, explained why he thought the present a psychological moment for infusing the scientific spirit into the factories of the nation.

To Keep Pace With the World

"The question of bringing science to industry is now very much in the air," the bureau chief, whose government career remains uninterrupted as political control in Washington changes, said. "The shortage of materials brings it to the fore. Abnormal war conditions made industry seek the help of science in many directions. Where embargoes shut off essential raw materials it was necessary to develop substitutes. And, looking forward, future competition in foreign trade with other great selling nations makes it incumbent upon American industry to do everything possible in applying science to attain greater efficiency and better quality of products."

This discussion led to an inquiry as to how science can serve industry.

"Every industry," the doctor rejoined, "has its troubles and its patent medicine remedies, but industry is fast learning that the real remedy for all its maladjustments is scientific work.

"Specifically, a factory makes a certain product and finds by trial and error that it fails to perform up to expectations. The problem, therefore, is, first, why the article is defective and then how to improve its quality.

"Frequently, too, the development of new processes of manufacture reaches the stage when novel materials are required, sometimes for unprecedented uses. New materials must continuously be developed to meet fresh needs and to act as substitutes for other matter which is becoming scarce. Incidentally, the Bureau of Standards is frequently called upon to help at this point."

The war clearly precipitated this burst of enthusiasm for bringing science to industry, but, of course, beginnings were made before the great conflict. Many of the large industrial corporations during the last decade have built first-rate laboratories for themselves. The Bureau of Standards was timidly and modestly making a start before the war, but with the emergency the testing of devices and of standards of measurement, quality and mechanical performance for the war-making departments of the government became a vital task. The personnel and equipment of the bureau grew by leaps and bounds. In addition to its regular appropriations from Congress, the bureau got financial aid from the President's special fund, and the War and Navy departments contributed workers.

"After testing devices for the War and Navy departments," Dr. Stratton explained, "they were turned over to industry for manufacture, and the data we compiled were made available to factories which received contracts to make them. War, at bottom, is largely a scientific and engineering problem. We hope to make permanent the vibrant organization, which grew up under the pressure of war, and render to industry service equivalent to that which we gave the departments of the government during the conflict."

Hundreds of Infant Industries

The blockade against the Central powers brought home vividly to American industries how they had allowed themselves to become dependent on Germany for "key" products. Suddenly the need to develop these materials at home challenged the resourcefulness of the American producer. During the four and one-half years of the war some 427 infant industries sprang up in the United States. Many of the new kinds of activity came into being as the result of scientific research. The Bureau of Standards, in coöperation with commercial organizations, stimulated the movement. Laboratory porcelain before the war came exclusively from Germany, and experiments on new products had to lag until the bureau suggested a formula for making the material in this country. Moreover, German clays had for many years been used in factory crucibles, and the government agency rendered a wide service in proving by actual testing that American clay would do equally well. On Austria-Hungary, too, America long relied for important commodities. Until the war satisfactory artificial razor hones were made only in the land of the Hapsburgs. The scientists in the employ of the government showed that they could be made equally well in America.

The Bureau of Standards, seeking to aid industry and not to compete with it, never manufactures articles for commercial use after discovering new processes. Its usual practice, according to Dr. Stratton, is to go to one substantial concern in the industry affected and attempt to interest it in the innovation. If the first enterprise approached fails to respond favorably, another receives an offer of the new formula.

Information For the Asking

Although in cases of this kind the bureau finds it more fruitful of results to deal with a single producer instead of with every unit of the industry, its policy, Dr. Stratton pointed out, is to make the information and complete data available to any other firm or corporation which on its own initiative seeks it.

Moreover, if a private enterprise faces a dilemma and is in need of scientific help, the bureau is ready to offer its services and to tackle a special problem that may be of interest only to the inquiring concern.

But the main business of the bureau, in this phase of its activity, is to experiment with general problems that affect particular lines of industry as a whole. Its chief interest is not to improve a given product of a single business, but to devise better and more exact methods of conducting the general processes of manufacturing. It desires to ascertain ways of eliminating waste, of shortening the steps in producing an article, in setting new industrial standards and determining the comparative values of materials and their capacity for performance.

"What things can your bureau do better than the facilities of private corporations and wherein is its province unique?" Dr. Stratton was asked.

Broad Scope Of Bureau's Work

"Our miniature mills, which soon, we hope, will represent all the basic industries of the country," the director replied, "are designed exclusively for experiment. They are approximately one-fourth the size of regular commercial mills, and require considerably less labor and material in their operation. All the variables and nonessentials have been reduced. The result is that tests can be made very much cheaper than in ordinary factories, where much more power, human labor and raw materials have to be used to obtain the same results.

"Moreover, private laboratories in large factories have a more specialized interest than we. They usually work on particular problems which are immediately related to present demands of the factory with which they are associated. We are interested in the physics and chemistry of industry, and experiment freely in every direction. Primarily, we are able in our small mills to discover general tendencies; then our scientific workers, in coöperation with industries, often go out into real factories and specifically apply their new knowledge and make it practical."

The bureau extends a general invitation to industrial men to send their problems or their representatives to Washington and to take full advantage of the experimental factories. On the other hand, the bureau offers to send its scientific specialists to factories anywhere in the country to bring their knowledge and their methods to aid in the solution of knotty problems.

Service Based On Give and Take

In explaining this service, Dr. Stratton, who speaks in the measured terms of a scientist, said:

"In offering this service to industry, we have no illusions about our ability. It is a matter of give and take. We learn as much as we teach. We do not presume to think that we can send our scientific men into strange industries and—presto—tell men who have been devoting their lives to them how to revolutionize their methods and obtain far better results. We aim, in visiting factories, to have an experimental attitude, and to combine our knowledge of the physics and chemistry of the industry with the grasp of the practical men on the established technique.

"Often, we are able, because of our fresh approach, to point out that the customary system is wasteful and inefficient and roundabout, and to make constructive suggestions for changes."

When the bureau gets an S O S call from the whirring realm of industry it classifies the inquiry, according to the scientific problem involved, rather than according to its conventional trade name. After the purely scientific side of the conundrum of commerce has been considered the inquiry is often passed on to one of the mills.

The textile mill, which is just being installed, is understood to be practically the only thing of its kind in the world. Though far less than half the size of a regular factory, its proportions are the same. The first problem which will go through the grist, if successfully solved, may lead to a changed attitude toward guaranteed pure standards of goods. The workers in this part of the bureau feel that the reason that all the efforts thus far through many years to get Congress to enact a law which would enable the government to guarantee the products of industry is the lack of a rational basis for determining the standards of goods—particularly textiles. Heretofore, the perennial question in connection with woollen textiles has been, Do they contain shoddy? The government investigators purpose to grade fabrics on the basis of their capacity to wear well. They will seek to know not so much what the component parts of the goods are, but rather what its performance value is.

A stumbling block up to the present has been the difficulty of identifying shoddy in cloth. The new idea in the government laboratory is to be indifferent to the question as to whether there is shoddy in the fabric or not.

Testing The Sole.

The next addition to the aggregation of mills will be a paint mill and then one for the making of lubricating oils. The process of development, Dr. Stratton expects, will continue until every fundamental industry is represented. The cement mill, which has been situated at the Pittsburgh branch of the bureau, will be moved to the capital. The rubber and paper mills are already well established.

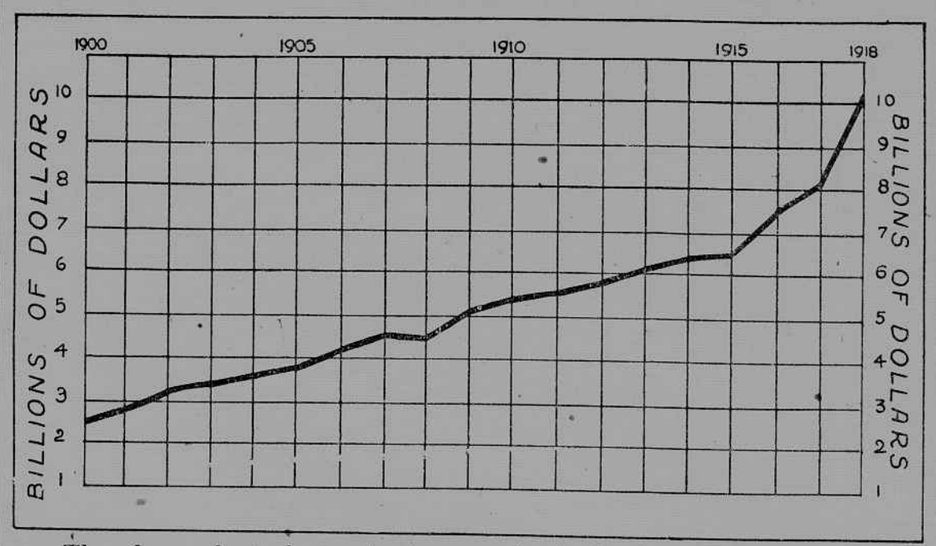
During the war, apparatus in the rubber mill was used to test the wearing power of soles for shoes—an eminently practical question. A company of soldiers was added to the experimental material and the results of the tests on their feet were correlated with those obtained in the laboratory. The army men were supplied with shoes for the study—one foot received a shoe of leather and the other one of leather compound. The results of the human experiment were strikingly similar to those attained by the mechanical "feet" in the laboratory. The directors of the mill concluded that composition leather wears almost as well as good leather and better than poor. The chief defect revealed was that the composition leather frequently broke when the soldiers stepped on stones or tough sticks. The composition leather used was a by-product of tire making. The trimmings and other waste of the tires were combined with cotton, other fibrous material and some ground leather.

The rubber mill also seemed to verify the conclusions of some of the tire makers that glue compounds could be used to increase the strength of the rubber and make its manufacture cheaper, particularly in the case of inner tubes. This new information, not original in the bureau, is being commercially used.

One of the chief objectives at present of the paper mill is to show by laboratory results that used paper can be satisfactorily remade for a second use. The made-over paper is used by the Bureau of Standards for stationery and for wrapping bundles.

In the Bureau of Standards the problems of pure science and those of practical industry meet. The most delicate tests of the thickness of a thread of tungsten go on side by side with experiments in the durability of a coarse fire hose.

Rapid Growth of Our National Banks



The above chart shows the increase in the loans and discounts of the banks operating under a Federal charter from 1900 to 1918, as disclosed by the official statistics of the Controller of the Currency.

Reconstruction—and Beyond

Economist Predicts Great Rise in Price of Farm Lands and Tremendous Boom in Improved Urban Property, but Believes There Is Little Early Prospect for Big Speculation in City Lots—Morning After of Inflation

Article VI—The Prospect for Real Estate

[Note.—This is the sixth of a series of articles in which Professor Davenport outlines his views of the future of farm lands and urban property and of the aftermath of inflation. The seventh article will be presented next Sunday.—Financial Editor.]

By H. J. Davenport

Professor of Economics in Cornell University

THE preceding analysis of prospective interest rates and security prices has assumed no marked long-time movement as taking place in prices, either upward or downward. Neither trend is to be desired. Good money is stable money—money in which general prices are practically constant. It is doubtless possible—though not quite probable—that this assumption of stability will be justified by the facts, as national and international monetary policies shall determine them. The situation, at any rate, is bad enough as it is, the prospective disturbances sufficiently serious. We are in face of no end of perplexities, as also we have to look forward to no end of disturbances and injustices as the result of our past errors of inflation. Further errors in the same direction will merely pile up further the wrongs and the perplexities. The wise policy is always to abide by whatever level of prices has been reached.

Fall Is More Likely Than Rise

But still the possibility has to be faced, on the one hand of a period of still further rising prices; on the other hand, of a newly beginning fall of prices. Of the two, both bad, I should incline, I repeat, to prefer the rise. I think it, however, in the long run, less likely than the fall, not because of American situation and policies, but rather of foreign influences. I expect, indeed, that after the period of readjustment is over, there will be a further temporary period of rising prices in America, due to the special conditions and vagaries of American finance, and that this rise will shortly be followed—and more than offset—by a reverse, a falling trend in the level of prices, due to the dominating effect of the attempt in Europe to get back to something like the pre-war level of prices through the reëstablishment of redemption in gold.

If such turns out to be the European policy, the situation might be appreciably mitigated by the adoption of international bi-metallism. But I do not expect this. For the first time, however, since bi-metalism has been a serious practical issue, it will present a tenable case—will promise some little balance of good rather than much evil. Heretofore it must have worked merely to accentuate the already rising trend of prices. It may now come to serve in some measure as mitigating an equally undesirable fall in general prices.

What Further Inflation Would Mean

Assume now—under no matter what determining influences—a further inflation of bank credit and a continued extension of deposit currency. There will result:

1. A further rise in general prices.
2. Further injustices to the earlier credit class, and a newly maturing group of injustices to all later classes of creditors. Each issue of new bonds, with its attendant price inflation, is in turn a wrong to each earlier class of subscribers. It is one way, as easy and simple as it is unfair, of working a partial cancellation of government obligations. Fortunately, the banks, as the chief malefactors, will be among the chief sufferers. Their net assets are in dollars, not in goods. Therefore, depression hits them hard. Against this harm the temporary gains from an increasing volume of business are only a minor offset.
3. A prolongation of the period of low real wages and of high profit margins—high dividends—for a time, even rising profits and rising dividends and rising stock quotations.
4. A trend toward rising rates of interest—in part because high gains stimulate the borrowing demand, in part because there is an increasing pressure on bank reserves through expanding deposit liabilities.

Checks to Further Expansion

But this process of inflation must stop somewhere, either—

(a) By the ultimate discrediting of the media of exchange; or,

(b) By a crisis precipitated by the falling values of securities as costs are gaining on selling prices and margins are narrowing; or,

(c) By rising interest rates working inevitably, together with falling margins, to compel an overdrastic and overrapid scaling down in the capitalized values of securities and properties; or,

(d) By bank reserves becoming overstretched through expanding deposit liabilities or by the gold exportations consequent on inflated prices—with a resulting contraction and liquidation of credit, and therewith the high interest rates and the property revaluations characteristic of panics and crises.

Meanwhile, however, some further aspects of rising prices must be examined. What are the prospects of real estate values?

Even under the ordinary conditions of rising prices, real estate values are the last to respond to the forces making for general advance. It is for this reason that real estate booms are likely to occur as the final phase in the business cycle. Ushering in the process of liquidation or collapse, they are easily interpreted, but commonly wrongly interpreted, as chief among the determining influences. They are merely the tardy symptoms of general causes. The explanation for this tardiness of response may not be clear; but probably it is due to the fact that the speculative real estate market is unorganized, haphazard, and relatively unintelligent.

Real Estate Lags Behind

With farm properties the people directly interested are unspeculative in temper, narrow visioned and nonventuresome. Farm gains run high for a considerable period before rents rise; and rents may have been high for a considerable period before prices respond. The farmer is so schooled to good and bad years that he fails to distinguish good crops from good prices for his crops, and especially prices on particular crops from general prices on all. In any case, farm property prices lag behind general prices and security prices; and once the advance sets in are likely to continue in rise until a general reaction declares itself.

Especially does this analysis hold for war times. Agricultural products have ruled high and, in the West especially, agricultural margins have been wide. But the market for farm properties has not been active; nor is there yet any noticeable change in selling prices.

It is certain then that the prices of land will shortly advance, in general conformity with the other prices that have already advanced. Farm profits, war-time profits, will shortly be disappearing. But despite this, and without any further inflation, agricultural lands are soon to advance.

The trend with urban property is a more complicated question. Building has been practically suspended for four years. House rents have not risen with other prices, excepting in the war industries centres, and not greatly even there. The shift of men into the camps and the armies has cut into the demand for houses. The wives and children have been visiting with the old folks.

Outlook for Vacant Lots

But this demand is now to be reinstated. The country is four years behind in its normal increase in building. Rents are almost certain to go up. And they will go up until, side by side with the larger building costs, houses come to be an attractive investment. Houses therefore are going to sell at a very marked advance over the prices of four years ago, as well as over their present prices. Improved property should be a good purchase. New houses are going to cost high, and for a time—until rents have gone up greatly—will have a prohibitive cost.

What, then, about vacant lots and urban speculative land movements? It is obvious that the outlook in the immediate prospect is not so bright. Improvements will advance much earlier and much more rapidly than ground values. It is only new building that furnishes the demand for more lots. It is only when rents have advanced enough and improvements have acquired prices high enough for new buildings to pay that the urban market for vacant property can become active. Lumber and iron have a long way to fall—a far longer way than with the European demand and the domestic shiping demand and the price control of the steel trust they are likely to fall—and rents and houses have a long way to rise before new buildings can become an attractive investment.

A Boom Sure Sooner or Later

Any considerable movement in vacant lots, and especially any marked special activity in vacant city property, is relatively remote. It will come. Prices will some day adjust into harmony with one another. People will have to have houses to live in and land for the houses to stand on. But this thing will move slowly. High lots depress the building demand. High buildings depress the lot demand.

If prices fall sharply and greatly the stock brokers demand from speculators that they make good their margins, as also, commonly, that they put up wider margins. The brokers sell if the margins are not forthcoming. This further depresses the market. Holders release some of their stocks to protect others. A still further fall. The banks further press the brokers; the brokers further press their clients. More fall still. A great pressure sets in from needy customers for bank accommodations in order to avoid forced sales. Interest rates go up. Being capitalized under higher interest rates, the securities and properties fall still further. Falling prices, cutting into margins, have now ended in financial panic. Wholesalers find their credit lines cut down; manufacturers cannot get the funds to maintain their production, and could not sell their products if they could get the funds. The retailer must reduce his stocks if he cannot get credit. He must restrict his sales to such of his patronage as require to be carried.

When Business Goes on a Spree

These are the penalties of prices that fall too sharply and too far. Financial stress develops easily into industrial stagnation—something more serious than mere financial stress or even mere insolvency. If the banks cannot collect from their debtors as fast as they are pressed by their demand creditors, bank suspension and bank liquidation add to the disaster. And if the liquidation is complicated by the fact that it follows a period of inflation—a time of expanded business margins and of abnormally high security prices—the trough of the wave yawns deeper as the crest has been high. The evils of inflated prices exaggerate the evils of deflation prices. It is dangerous to tamper with the nervous system of the industrial organization.

As with the human, so with the industrial body, nervous exhaustion is the worst of diseases. Riot and repentance have each its evils; and each is incitement to the excesses of the other. Stability of prices is business and industrial temperance; inflation is a spree; deflation is the headache and lassitude of the morning after. At the extreme there is always delirium tremens waiting.

But, after all, this parallel is not complete. In delirium the snakes that one sees are fictions of the imagination. In crises they are real together with all manner of other uncleanness.

Invested Capital as Defined Under New Income Taxation

Important Changes in Methods of Computation Affecting Business Men, Insurance Companies and Banking Institutions Are Pointed Out by Expert

By Morris F. Frey

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THE new revenue bill, with a few changes, bases the computation of invested capital on the same principles as those laid down in the act of 1917. The bill expressly places the computation upon the basis of the cash or other property put into the business, plus the earned surplus and undivided profits, exclusive of earnings for the current taxable year, and not upon that of the present valuation or appraisal of its assets. Borrowed money or property, whether represented by bonds, notes, open accounts or otherwise, is specifically excluded. In determining invested capital, a corporation shall add together its paid-in capital and its paid-in or earned surplus and undivided profits as shown by the books of the corporation at the beginning of the taxable year. Adjustments must then be made as provided in the law. If property has been paid in for stock at a value substantially in excess of the par value of the stock the difference between the par value of the stock and the actual value of such property may be included in the paid-in surplus of the corporation. The regulations of the Treasury Department for 1917 provide that evidence tending to support a claim for paid-in surplus, under the above circumstances, must be as of the date of conveyance, and may consist, among other things, of (1) appraisal of the property by disinterested authorities, (2) the assessed value in the case of real estate, and (3) the market price in excess of the par value of stock or shares.

What "Intangible Property" Means

Intangible property, as used in connection with invested capital, includes patents, copyrights, secret processes and formulæ, good will, trade marks, trade brands, franchises and other like property. Such property, when paid in for stock or shares of a corporation, may be included in invested capital only to the extent specifically provided.

The Senate bill provides that intangible property paid in for stock or shares of a corporation prior to March 3, 1917, may be included in invested capital at a value not in excess of the lowest of the following values:

(a) Actual cash value of property when paid in;

(b) Par value of stock isued therefor; or

(c) In the aggregate, 30 per centof the par value of the stock of the corporation outstanding on March 3, 1917.

If intangible property was paid in for stock on or after March 3, 1917, the value denoted under (a) above should be 30 per cent in the aggregate of the par value of the stock of the corporation outstanding at the beginning of the taxable year for which return is made. In the bill as it passed the House intangible property other than patents and copyrights, paid in for stock subsequent to March 3, 1917, may not be included in invested capital.

Under the regulations for 1917 corporations were required to make certain adjustments of their surplus and undivided profits accounts. Where through failure to provide for depletion, depreciation, obsolescence or other expenses or losses, or where for any other cause or reason the books of account of the taxpaper do not show the true paid-in or earned surplus and undivided profits, such adjustments are required to be made in the computation of invested capital as are necessary to arrive at a statement of the correct amount of invested capital. These adjustments cover additions to surplus due to capital expenditures which have been charged to current expenses, as well as deductions for depreciation, obsolescence or other losses or expenses.

Assets Not Included In Invested Capital

Stocks, bonds or other obligations (other than obligations of the United States), the income from which is not subject to income tax to the corporation, are termed "inadmissible assets" and the invested capital, as determined from the capital and surplus after making adjustments on account of intangible property, etc., which have been described above, must be reduced or further adjustment made therefor as provided in the bill. Different methods are provided for the treatment of inadmissible assets under the Senate bill. The general rule set forth is that the invested capital shall be reduced by an amount thereof equal to the percentage which the amount of inadmissible assets is of the total amount of the admissible and inadmissible assets of the corporation during the taxable year. This method of requiring deduction for inadmissible assets is not as liberal as that prescribed by the regulations of the Treasury Department for 1917. The regulations for last year provided that deductions should be made on account of inadmissible assets only where the admissible assets were less than the amount of the invested capital as computed in accordance with the regulations. In such case the invested capital was required to be reduced only to an amount equal to the sum of the admissible assets.

Income From "Inadmissible Assets"

Dealers in securities, insurance companies, banks, banking associations, loan and trust companies, have the privilege under the Senate bill of electing to include in net income all income derived from inadmissible assets, in which case no deduction shall be made from invested capital on account of such assets. Whether or not the corporation desires to take advantage of this privilege of election is dependent upon the ratio of its inadmissible assets to its total assets. If the income from its inadmissible assets is in excess of 10 per cent of the portion of the invested capital which such corporation would be required to deduct from its total invested capital, as above stated, it will be to the advantage of the corporation not to elect to include such income in taxable income, but to compute its invested capital by making the proportionate deduction provided for. If, however, the ratio of the inadmissible assets to the total assets is high it will be to the advantage of the corporation to elect to include all income from inadmissible assets in invested capital. No general rule, however, can be stated, and if the assets of a corporation include inadmissible assets the tax should be computed by both methods before return is made, in order definitely to ascertain which is to the best interests of the corporation. An election once made by a corporation must be followed in the future, unless permission to change is granted by the Commissioner of Internal Revenue.

If part of the income of the corporation consists of profits derived from the sale or disposition of inadmissible assets, that proportion of the inadmissible assets which such profits bear to the total income from such assets shall be included as admissible assets. Similar treatment shall be made of inadmissible assets where no deduction is permitted of interest on indebtedness incurred in the purchase or continued to carry such obligations.

Valuation in Case Of Reorganization

In the case of the reorganization, consolidation or change of ownership of the trade or business after January 1, 1911, the invested capital of the predecessor's business for the pre-war period shall be deemed to be the invested capital for such period of the corporation now engaged in the business. In the case of reorganization, consolidation or change of ownership of the business, or of the change of ownership of property after March 3, 1917, if 50 per cent or more of the interest or control therein remains in the same persons, the assets transferred shall not be allowed a higher value in determining the invested capital than would have been allowed under the previous ownership.

Significant Relations

Money and Prices:

Stock of money gold in the country	Now $3,080,510,011		A year ago $3,040,449,343
	Nov. 1 1918		Nearest period previous year
Loans of all national banks	$10,097,000,000		$9,535,527,000
Their surplus reserves	69,000,000		95,071,000
Bills discounted and bought by Federal Reserve Banks	Last week $2,046,572,000		A year ago $113,408,000
Federal Reserve notes in circulation	2,466,556,000		259,769,000
Total gold reserve	2,101,317,000		517,925,000
	Yesterday.	Previous close.	A year ago.
Average price of fifty stocks	77.24	74.40	72.78
Average price of twenty-five bonds	87.34	87.29	85.65
Food cost of living (Annalist index number)	Last week 299.142	The week before 297.503	A year ago 278.696
General commodity price level (Dun's index number)	Jan. 1 230.146	Dec. 1 230.375	Jan. 2 1918 222.175

Production:

Unfilled U. S. steel orders, tons	Dec. 31 7,379,152	Nov. 30 8,124,663	A year ago 9,381,718
Pig iron (daily average), tons	December 110,762	November 111,802	A year ago 92,097
	1918 yield, estimated		The 1917 crop
Wheat crop, bushels	917,449,000		636,655,000
Oat crop, bushels	1,538,359,000		1,592,740,000
Corn crop, bushels	2,582,814,000		3,065,233,000
Cotton, bales	11,700,000		11,302,375

Distribution:

	Increase or decrease from year before		
Gross railroad earnings	4 roads First week in January +1.2%	All Class 1 roads Month of November +23.1%	All Class 1 roads Jan. 1 to Nov. 30 +20.5%
Bank clearings	Last week +19.4%	Week before +18.5%	Year to date +21.3%

General:

Active cotton spindles	December 33,652,612	November 33,121,507	A year ago 33,644,690
Commercial failures (Dun's):	December	November	A year ago
Number	683	570	1,055
Liabilities	$12,249,483	$13,815,166	$14,043,716
Building permits (Bradstreet's): (154 cities)	December, 1918 $17,367,604		December, 1917 $30,832,066